

What is claimed is:

1. A fibrous filter media comprising a web of thermoplastic fibers, wherein said thermoplastic fibers have been surface modified with a gaseous plasma at atmospheric conditions.

2. The fibrous filter media of claim 1, wherein the thermoplastic fibers are electrostatically charged.

3. The fibrous filter media according to claim 2, wherein the electrostatically charged thermoplastic fibers are electrostatically charged by a corona discharge method.

4. The fibrous filter media according to claim 1, wherein said gaseous plasma is a He/air mixture.

5. The fibrous filter media according to claim 2, wherein said gaseous plasma is a He/air mixture.

6. The fibrous filter media according to claim 3, wherein said gaseous plasma is a He/air mixture.

7. The fibrous filter media according to claim 1, wherein said gaseous plasma is an Ar/air mixture.

8. The fibrous filter media according to claim 2, wherein said gaseous plasma is an Ar/air mixture.

9. The fibrous filter media according to claim 3, wherein said gaseous plasma is an Ar/air mixture.

10. The fibrous filter media according to claim 1, wherein said thermoplastic fibers are made from one or more of the members selected from the group consisting of polyolefins, polyesters, polycarbonates, polyimides, and polyamides.

11. The fibrous filter media according to claim 2, wherein said thermoplastic fibers are made from one or more of the members selected from the group consisting of polyolefins, polyesters, polycarbonates, polyimides, and polyamides.

12. The fibrous filter media according to claim 3, wherein said thermoplastic fibers are made from one or more of the members selected from the group consisting of polyolefins, polyesters, polycarbonates, polyimides, and polyamides.

13. The fibrous filter media according to claim 1, wherein the web is a fibrous layer of melt extruded fibers or filaments.

14. The fibrous filter media according to claim 2, wherein the web is a fibrous layer of melt extruded fibers or filaments.

15. The fibrous filter media according to claim 3, wherein the web is a fibrous layer of melt extruded fibers or filaments.

16. The fibrous filter media according to claim 1, wherein the web possesses enhanced particulate filtration properties.

17. The fibrous filter media according to claim 2, wherein the web possesses enhanced particulate filtration properties.

18. The fibrous filter media according to claim 3, wherein the web possesses enhanced particulate filtration properties.

19. The fibrous filter media according to claim 1, wherein the web is comprised of carded, airlaid, or wetlaid staple fibers.

20. The fibrous filter media according to claim 2, wherein the web is comprised of carded, airlaid, or wetlaid staple fibers.

21. The fibrous filter media according to claim 3, wherein the web is comprised of carded, airlaid, or wetlaid staple fibers.

22. The fibrous filter media according to claim 1, wherein the web is constructed using a fibrous layer of melt extruded fibers or filaments and any one or more of carded, airlaid, or wetlaid staple fibers.

23. The fibrous filter media according to claim 2, wherein the web is constructed using a fibrous layer of melt extruded fibers or filaments and any one or more of carded, airlaid, or wetlaid staple fibers.

24. The fibrous filter media according to claim 3, wherein the web is constructed using a fibrous layer of melt extruded fibers or filaments and any one or more of carded, airlaid, or wetlaid staple fibers.

25. A fibrous electret filter media with improved charge stability to environmental conditions comprising a web of thermoplastic fibers which have been surface modified with a gaseous plasma at atmospheric conditions and charged.

26. The fibrous electret filter media according to claim 28, wherein the fibrous electret filter media is charged by corona discharge.

27. A fibrous electret filter media with improved charge stability to thermal conditions comprising a web of thermoplastic fibers which have been surface modified with a gaseous plasma at atmospheric conditions and charged.

28. The fibrous electret filter media according to claim 27, wherein the fibrous electret filter media is charged by corona discharge.

29. A method of generating a fibrous filter media comprising providing a web of thermoplastic fibers, surface modifying said thermoplastic fibers with a gaseous plasma at atmospheric conditions to generate the fibrous filter media.

30. The method claim 29 wherein the thermoplastic fibers are made of a polymer selected from the group consisting of polyolefins, polyesters, polycarbonates, polyimides, and polyamides.

31. The method of claim 29 wherein said gaseous plasma is a He/air mixture.

32. The method of claim 29 wherein said gaseous plasma is an Ar/air mixture.

33. The method of claim 29 wherein the web is comprised of carded, airlaid, or wetlaid staple fibers.